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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,922	07/30/2001	Roger Paulman	11362/14	6577

7590 07/27/2006

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EXAMINER
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DUONG, THO V

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/918,922

Applicant(s)

PAULMAN ET AL.

Examiner

Tho v. Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/30/01</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Receipt of applicant's amendment filed 5/15/06 is acknowledged. Claims 1-7 are pending.

#### ***Response to Arguments***

Applicant's arguments filed 5/15/06 have been fully considered but they are not persuasive. Regarding claim 1 rejected under Paulman, applicant's argument that Paulman fails to disclose the collapsed tubing structure, has been very carefully considered but is not deemed to be persuasive. Paulman discloses (figure 5) that the tube (22) has two collapsed sidewalls which are the flat side of the oval shaped tube, these sides have been formed by the deformation of the circular tube after the tube was process through the device (44). Regarding claims 1, 3-4 rejected under Ochiai, applicant's argument that Ochiai fails to disclose the collapsed tubing structure ; an integral one-piece element , and hollow interior, has been very carefully considered but is not deemed to be persuasive. Clearly, Ochiai discloses (figures 4-6) the heat exchanger tube has at least two collapsed sidewall portions (4), these side walls are formed from the deformation of the tube wall. Regarding the integral one-piece element argument, it has been held that the term "integral" is sufficiently broad to embrace construction united by such means fastening and welding. In re Hotte, 177 USPQ 326, 328 (CCPA 1973). Furthermore, despite of containing a stiffing plate, the tube (8) of Ochiai still has substantially hollow interior. (see cross-section of the tube). Regarding the U-shape argument, applicant has compared two figures of the claimed invention and the prior art (figure 11) and called the shape in the prior art as a corrugated shape. However, this "corrugated shape" is considered to read on the claimed limitation of "U-shaped configuration" since the collapsed portion sidewall has a generally U-

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shaped configuration (27). Applicant is reminded that the examiner must interpret the limitation as broadly as it reasonably allows.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Paulman et al. (US 5,228,198). Paulman discloses (figures 1-5) a heat exchanger assembly of a side entry type having at least one fin set comprising an intermediate elongated heat exchanger tube (22) having at least two collapsed sidewall portions in figure 5, where the tube (22) is flattened by device (44); the elongated tube including an integral one-piece return bent portion and the tube wall is about 0.016 inches.

Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Ochiai et al. (JP 60158932A). Ochiai discloses (figures 1-7) a heat exchanger assembly comprising an intermediated elongated heat exchanger tube having at least two collapsed sidewalls portion (4) extending substantially the length of the tube, the elongated tube including an integral one-piece return bend portion (7). Ochiai further discloses (figure 6) the collapsed sidewall portions comprise a pair of opposed elongated recesses (10) extending substantially the length of the tube.

***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zifferer (US 5,409,057) in view of Geppelt et al. (US 5,092,038). Zifferer discloses (figures 6,7,16-17 and column 5, lines 15-20) an elongated heat exchanger tube comprising an elongated tube (1), with a wall thickness of 0.025 (in) having first and second ends and an internal passageway (3) extending between the first and second ends, the tube being formed from a sidewall; at least two collapsed portions of the sidewall of the elongated heat exchanger tube extending substantially along a length of the elongated tube, the two collapsed portions contacting each other within the passageway of the tube. Since the contacted portion of the collapsed portions is not permanent bonded, the at least two collapsed portions of the sidewall of the tube are capable of being expandable radially outward to push the at least two collapsed side wall portions outward so that they no longer contact each other; and the collapsed portions define at least two elongated recesses (5) extending substantially along a length of the tube. Zifferer discloses (figure 16a) that the heat exchanger assembly has an integral one-piece return bend formed from the elongated tube. Zifferer does not disclose that the heat exchanger assembly has a fin set that connected with the tube. However, fin on tube was well known in the heat exchanger art. Geppelt discloses (figure 14) a heat exchanger assembly that has a corrugated tube (10) equipped with a fin set (26) for a purpose of increasing the heat transfer surface area of the tube. It would have been obvious to one having ordinary skill in the art at the time the invention was made to

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use Geppelt's teaching in Zifferer's heat exchanger assembly for a purpose of increasing the heat transfer surface area of the tube.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zifferer and Geppelt as applied to claims 1 and 5 above, and further in view of Zifferer (US 5,311,661). Zifferer'057 and Geppelt substantially disclose all of applicant's claimed invention as discussed above except for the limitation that the collapsed portions have two U-shaped configuration with the bottom portions contact each other. Zifferer'661 discloses (figures 9-11 and column 4, lines 63-column 5, line 3) that the collapsed portion (27) can also have U-shaped configuration with the bottom portion contact each other for a purpose of forming a square pattern tube that fit inside a square cross section shell without requiring any filler to prevent cross circulation of the fluid in the heat exchanger using the tubes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Zifferer'661 teaching in Zifferer'057 for a purpose of forming a square pattern tube that fit inside a square cross section shell without requiring any filler to prevent cross circulation of the fluid in the heat exchanger using the tubes.

### *Conclusion*

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

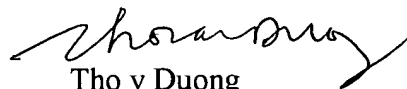
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keasel Eric can be reached on 571-272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



TD  
July 21, 2006



Tho v Duong  
Primary Examiner  
Art Unit 3753